



2014 FAA Worldwide Airport Technology Transfer Conference

New Large Aircraft – Impacts to Airport Planning and Emergency Operations

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NLA and Airport Planning

Planning for Accommodating NLA at Certificated Airports Began in the Late 1990s. FAA Report DOT/FAA/AR-97/26, “Impact of NLA on Airport Design”.

- Airside Impact:
 - Geometric Design of Runways and Taxiways
 - Pavement Issues
 - Safety Issues
 - Environmental Issues
- NLA Requirements Have a Significant Impact for Airport Planners



ARFF Considerations for Airport Planners

- NLA on the Gates
- NLA During Taxi
- NLA During Emergency Evacuation
- ARFF Response





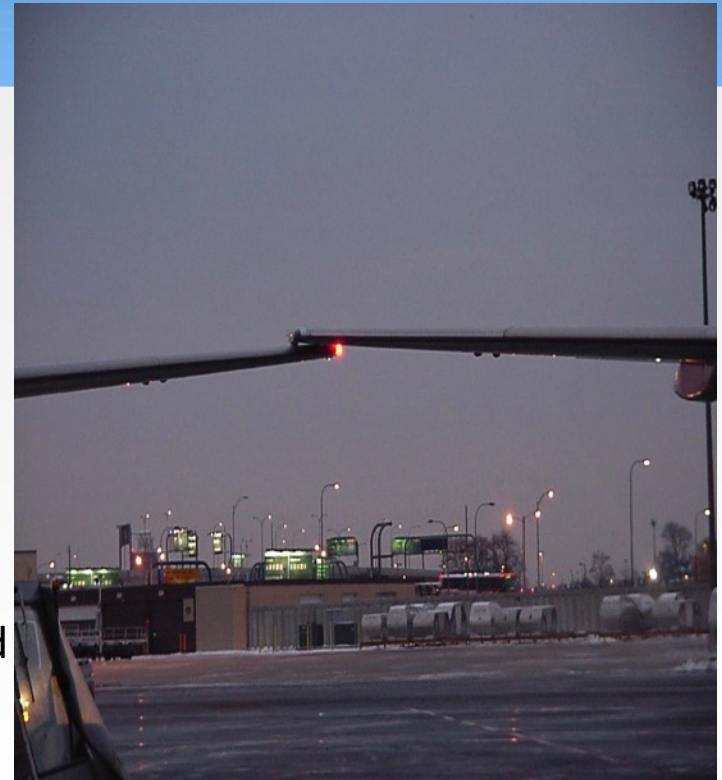
At the Gate



Considerations for Planners when designing gate areas must include satisfying the requirements of the type aircraft that will be using the gate. “Aircraft Characteristics for Airport Planning” documents are prepared for every type and model Aircraft.



There is little or no leeway in how these gate areas are set up. If an aircraft is not brought in exactly on the lead line or not stopped on the T, danger of ramp damage increases.



What About During Emergency Management?



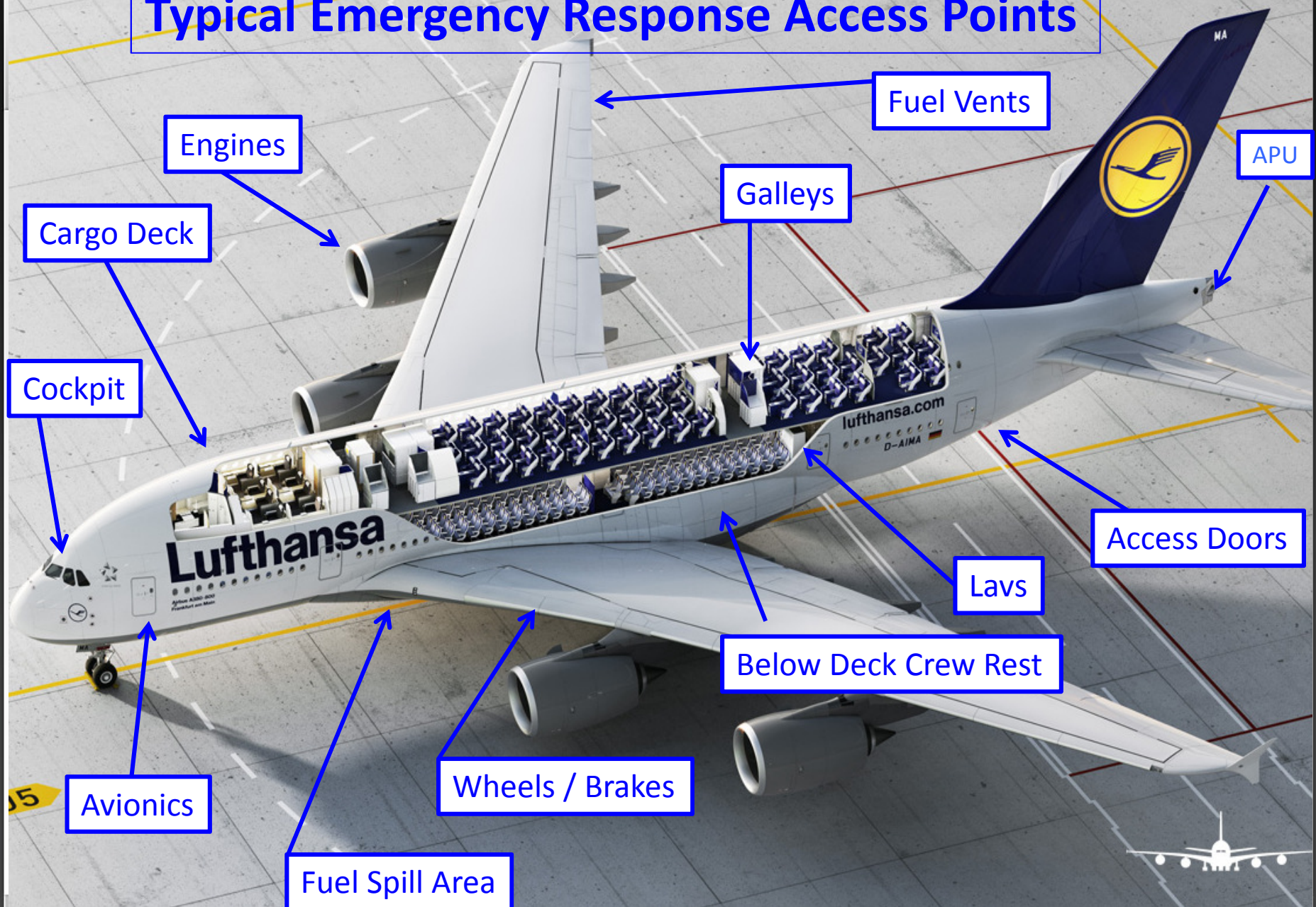
Risk Analysis – Structures, Adjacent Aircraft, Occupied Portion



Length 39.5'
Width 10.5'
Turning Radius = $\leq 3 \times$ Vehicle Length

Height (loaded) 12.5'
Loaded Weight 81,700 Lbs.

Typical Emergency Response Access Points



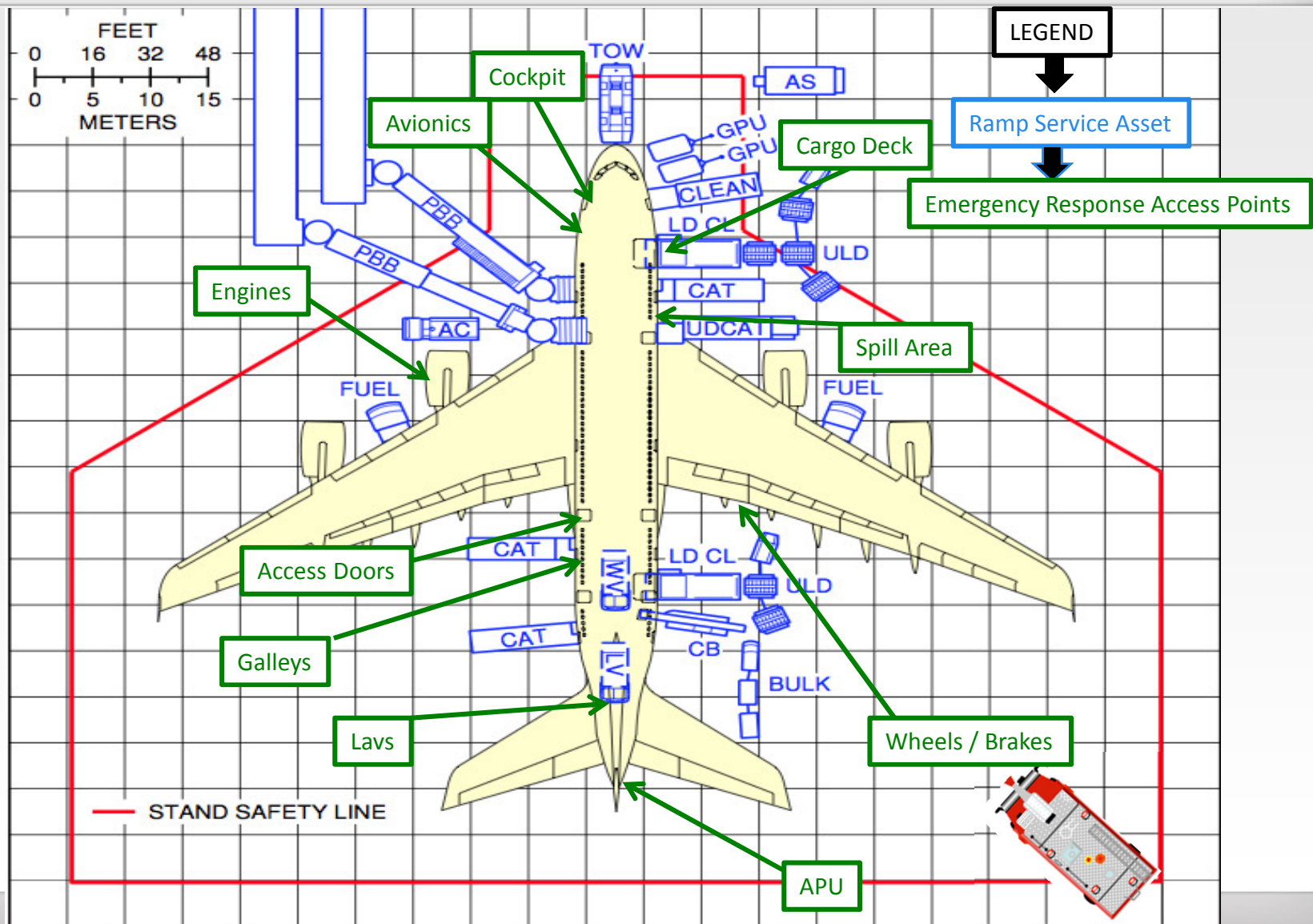
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Jack Kreckie, 7/3/2014



Typical Ramp Service Layout A380

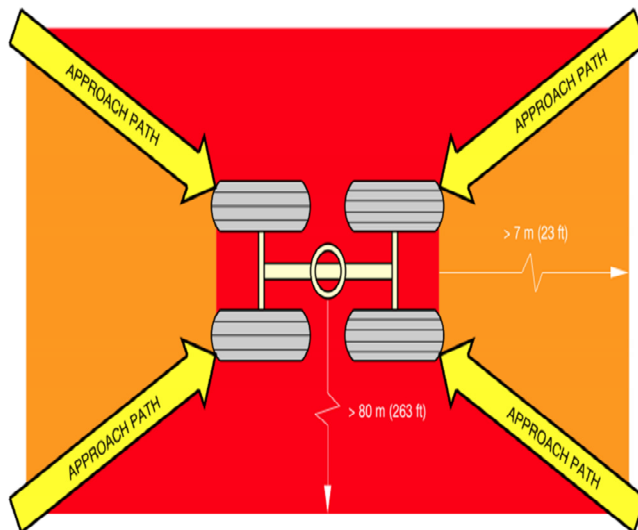




Access to Wheels



WHEEL/BRAKE OVERHEAT HAZARD AREAS

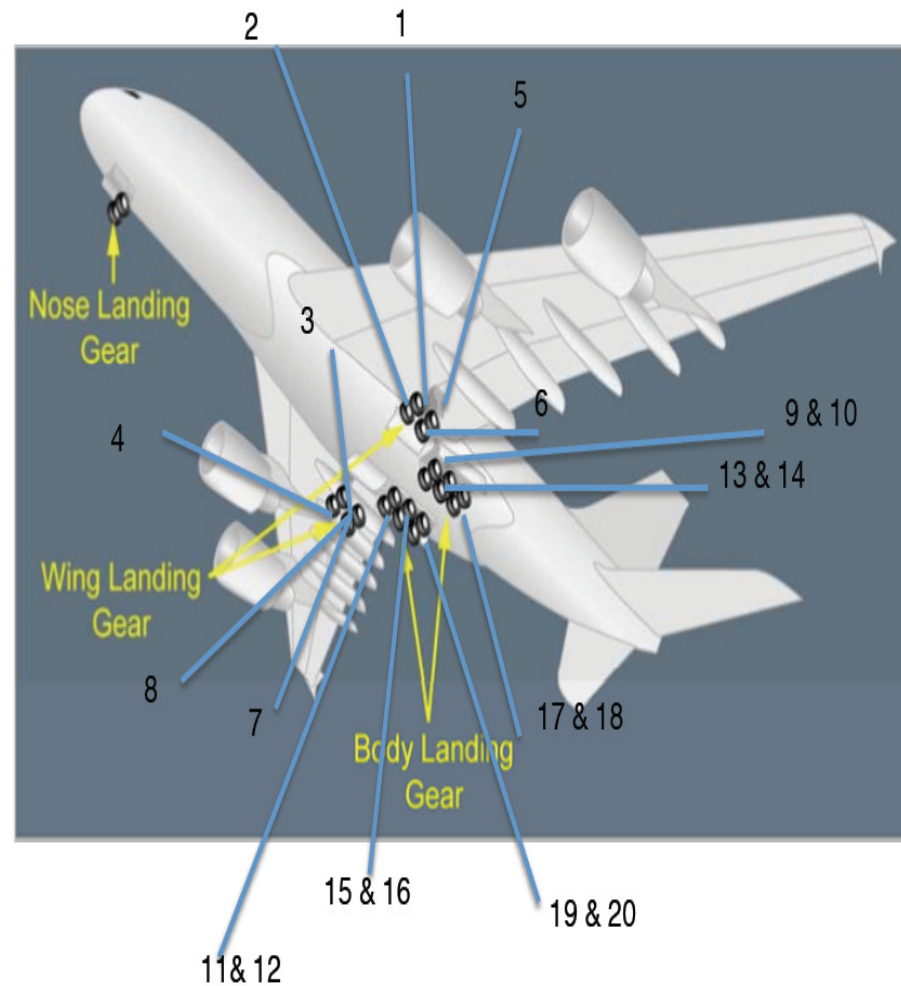


NOTE:

- RIM HAZARD AREA - RISK OF DIRECT HIT FROM RIM DEBRIS
- TIRE HAZARD AREA - RISK OF DIRECT HIT FROM TIRE DEBRIS

- ONLY APPROACH A LANDING GEAR THAT IS HOT OR ON FIRE FROM AN OBLIQUE ANGLE IN THE DIRECTION OF THE TIRE SHOULDER.
- DO NOT GO IN THE RIM HAZARD AREAS; METAL DEBRIS FROM A RIM BURST CAN KILL YOU.
- ONLY GO IN THE TIRE HAZARD AREAS WITH CAUTION; RISK OF DEBRIS FROM TIRE EXPLOSION.

Gear Number System A380





Rapid Access = Rapid Mitigation = Reduction in Human Risk & \$ Loss (Direct and Indirect Costs)

Harmonizing Emergency Response Plans with Aircraft Parking, Gates, RON:

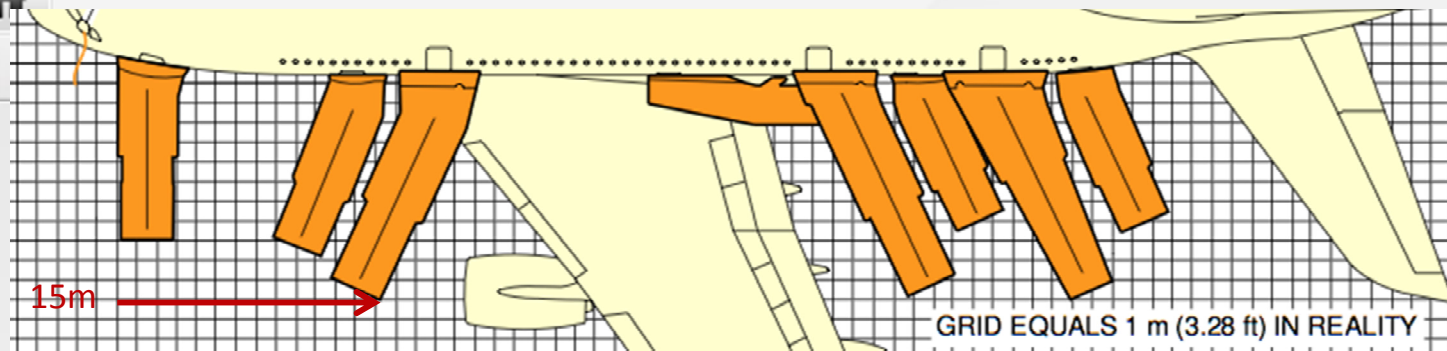
- Reduces Delays in Response
- Increases Effectiveness of Initial Actions by Emergency Responders
- Reduces Opportunity for Escalation of Incident Scale





Considerations During Emergency Evacuations - NLA







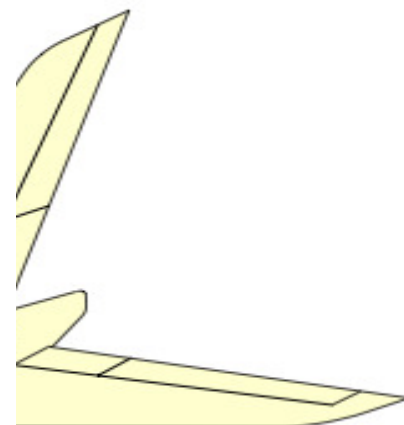
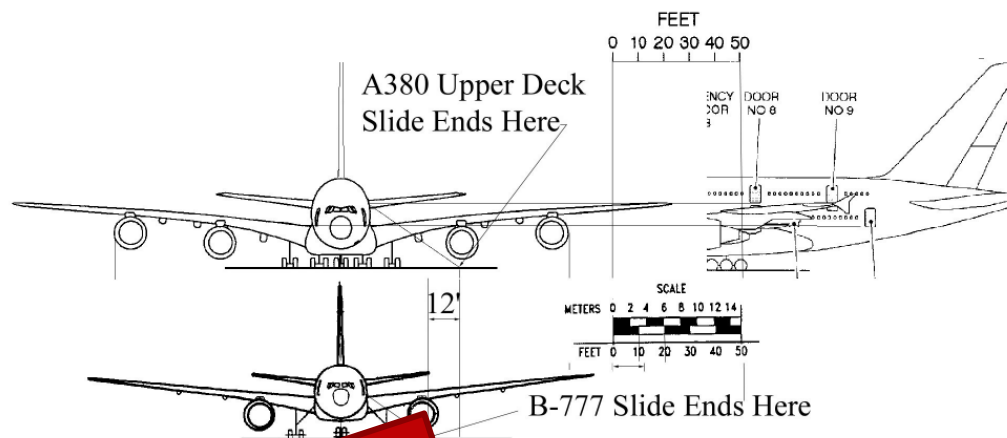
Minimum Response to NLA

Index E - Minimum of 3 ARFF Vehicles – Carrying a Minimum of 6,000 Gallons of Water, Commensurate Quantities of Foam Concentrate + Complementary Agent.

Most Index E Airports Will Respond With Double that Amount.



Each Asset Has Specific Functions, Specialized Agents and Capabilities.
Positioning of Apparatus at an Aircraft Accident or Incident is Determined by
Where Each Asset is Specifically Needed.



Upper Deck Slide Landing Point

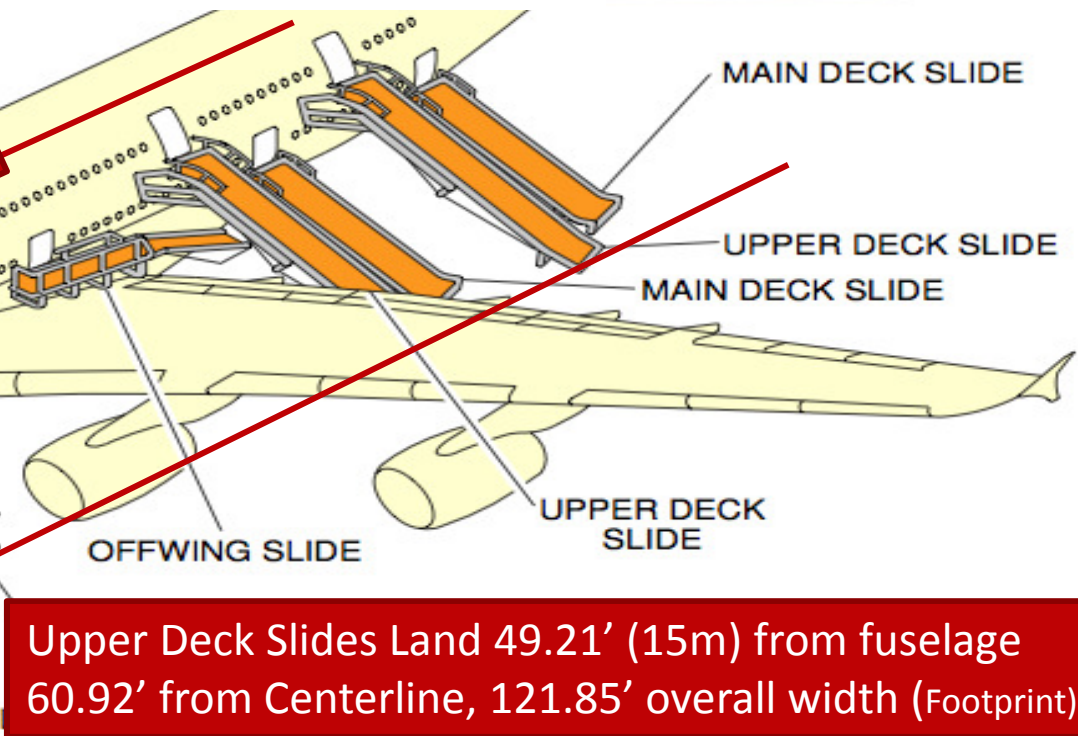
Aircraft Centerline

Footprint With Slides 120.85'

60.92'

MAIN DECK SLIDE

MAIN DECK S



Upper Deck Slides Land 49.21' (15m) from fuselage
60.92' from Centerline, 121.85' overall width (Footprint)



The diagram illustrates a runway exit scenario with the following dimensions and labels:

- TURN R = 51 m (167 ft)**: Radius of the initial turn.
- FAA LEAD-IN FILLET L = 75 m (250 ft)**: Length of the lead-in fillet.
- APPROX 10.2 m (33 ft)**: Distance from the runway centerline to the start of the fillet.
- FILLET R = 25.5 m (85 ft)**: Radius of the fillet curve.
- 10.92'**: Distance from the runway centerline to the slide landing point.
- Off Pavement**: Indicated by red arrows pointing to the areas where the aircraft paths exit the runway.
- Slide Landing Point**: Indicated by a red arrow pointing to the point where the aircraft would have landed if it had not exited the runway.
- TAXIWAY CENTERLINE**: Indicated by a red arrow pointing to the centerline of the taxiway.
- Runway Dimensions**: 60 m (200 ft) wide, with a 30 m (100 ft) section at the end.
- Paths**: NLG PATH (dashed pink line) and WLJ PATH (dashed blue line).
- Runway Centerline**: Indicated by a black arrow.



ARFF Response



- High Center of Gravity Vehicles
- Live Load
- Large Turning Radius
- 80 Tons Gross Increases Stop/ Deceleration Time
- High Occurrence of Rollovers



Results of Sharp Turn



Tuesday June 23, 2014, OAK – 1998 Oshkosh T-3000 With Snozzle
Failed to Negotiate 90° Turn



OAK – Timed Response Route

Accident

OMC

ARFF Station





Guidance



FAA AC 150/5210-15A – ARFF Station Building Design:

- Immediate Straight Access to Airfield Network
- Unimpeded Access Routes With a Minimum of Turns to the Airfield and Aprons
- Direct Access to Terminal Aprons
- Planned Airfield Improvements That Will Not Create Emergency Response Runs That Negatively Impact 139 Response Time Requirements

FAA AC 150/5300-13A (319): Airport Design

- Access Roads Normally Needed to Provide Unimpeded 2-Way Access for ARFF Vehicle to Potential Accident Areas
- Recommended - Entire RSA RPZ Accessible to ARFF, and No Part More Than 330' From an All-Weather Road or Paved Operational Surface
- Road Design - All Weather Roads Designed to Support Normal ARFF Response Speeds. Use Large Radius Turns to Support High CoG Vehicles.



Questions? Comments ?

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